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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,881	03/23/2004	Gregory Lee Brookshire	TI-36253	2680
23494 7590 11/19/2007 TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			EXAMINER HUYNH, NAM TRUNG	
			ART UNIT 2617	PAPER NUMBER
			NOTIFICATION DATE 11/19/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com
uspto@dlemail.itg.ti.com

Office Action Summary

Application No.

10/806,881

Applicant(s)

BROOKSHIRE, GREGORY LEE

Examiner

Nam Huynh

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This office action is in response to amendment filed on 8/29/2007. No amendments were made to previously presented claims 1-21.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yi et al. (US 2004/0174831) (hereinafter Yi) in view Dent (US 6,314,504).

Regarding claims 1, 3, 4, 5, and 7, Yi discloses a method and apparatus for data transmission suitable for a high-performance wireless LAN. In the scope of the invention, a media access controller (MAC) (master/processor) performs data transmission with a baseband processor (BBP) (slave/LAN adapter) using a serial communication interface. The MAC includes a data path and a control signal path for

mutual transmission of data and control signals with the BBP (page 3, paragraph 37).

The control path is a transmission path that allows for the reading and writing of the contents of a register provided in the BBP and uses a serial peripheral interface (SPI) (page 3, paragraph 38).

Yi does not explicitly disclose that the slave device is configurable to operate in multiple modes including a direct memory addressing mode and an indirect memory addressing mode. Dent discloses multi-mode memory addressing using variable length (title). In the scope of the invention, new addressing modes are provided to a processor including direct addressing and indirect addressing modes (multiple modes) (column 7, lines 14-24). With reference to figure 6, the first index register (item 602) indicates direct addressing that comprises 31 bits of direct address in a 32 bit instruction. The second index register (item 604) indicates indirect addressing that comprises 30 bits of indirect address and thus shows that fewer bits being transferred for the indirect memory addressing mode for reads/writes than in the direct memory addressing mode. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yi to allow the MAC to configure the BBP to operate in a direct memory addressing mode or an indirect memory addressing mode, as taught by Dent, in order to reduce the number of memory bits that have to be read or written to perform a given task that in turn reduces power consumption for embedded, battery powered applications.

Regarding claim 2, Yi illustrates in figure 6B a timing diagram for illustrating the transmission of transmission-rate data to a baseband processor from the serial

peripheral interface circuit (page 2, paragraph 30). It can be seen from the figure that this data is transmitted in 40 bits, which is greater than the 32 bit instructions associated with the commands of the indirect/direct addressing modes taught by Dent.

Regarding claim 6, it is further obvious to one of ordinary skill in the art that an indirect addressing mode would conserve processing resources and in turn, conserve power in a battery operated device.

Regarding claim 8, the "multiple modes, each mode being associated with a different read/write command length" is rendered by the direct/indirect address modes as explained in regards to claim 1. Yi additionally teaches that the electronic device that includes the MAC and BBP is exemplified as a mobile device such as a PDA (battery powered) and that the MAC and BBP transfer signals to each other containing transmission data length (data length field) (page 3, paragraph 38), a read/write bit (read/write field), and an address pointer field (address field) (page 5, paragraph 70).

Regarding claim 10, the indirect addressing mode of the combination of Yi and Dent renders the "low power compatible mode".

4. Claims 11, 12, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yi et al. (US2004/0174831) (hereinafter Yi) in view of Dent (US 6,314,504) and further in view of Cromer et al. (US 2004/0002366) (hereinafter Cromer).

Regarding claim 11, the combination of Yi and Dent discloses the limitations set forth in claim 10, but does not explicitly disclose that the processor and the slave device are configured to communicate in the low power compatible mode when only the battery

provides power to the processor and slave device. Cromer teaches the determination of a power source, whether it is auxiliary, battery, or DC of a power source (page 1, paragraph 10). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Yi and Dent to include the determining if the mobile device is currently operating on battery power, as taught by Cromer, in order to implement the indirect addressing mode between the MAC and BBP. As previously discussed, the indirect addressing mode consumes less power and thus would conserve power when the mobile device operates on battery power.

Regarding claim 12, Cromer teaches the determination of whether the available battery power is a certain percentage (threshold amount) (figure 8, item 812).

Regarding claims 13, 17, 18, 20, and 21, the limitations are rejected as applied to claims 11 and 12 wherein the power consumption parameter is the determination of what power source the mobile device is operating on and the percentage of available power when operating by battery taught by Cromer.

Regarding claims 14 and 15, it is further obvious that the length of the instructions depends on the type of processor.

Regarding claim 16, the MAC controls the BBP in the invention of Yi. The BBP performs functions associated with a wireless communication protocol such as to modulate/demodulate and transmit/receive data (page 2, paragraph 35).

Regarding claim 19, the limitations are rejected as applied to claim 8 wherein the "first device" is the MAC and the "second device" is the BBP. The "first mode" is rendered by the direct addressing mode and the "second mode" is rendered by the

indirect addressing mode taught by Dent. Yi additionally teaches that the BBP transmits at least one of the transmission rate data and the transmission length data in response to an event signal ("not busy" signal) (page 1, paragraph 11).

Response to Arguments

5. Applicant's arguments with respect to claims 1-8 and 10-21 have been considered but are moot in view of the new ground(s) of rejection. In the previous Non-Final Rejection filed 6/5/2007, the Examiner conceded that the combination of Yi and Dent does not explicitly disclose that fewer bits are serially transferred for reads and writes in the indirect and direct memory addressing modes, or different/reduced read/write command lengths for different modes. However, upon further review of Dent, the Examiner asserts that this reference teaches this limitation. As mentioned above with respect to claims 1, 3, 4, 5, and 7, Dent teaches a direct memory addressing mode that comprises 31 bits of direct address in a 32 bit instruction whereas an indirect memory addressing mode comprises 30 bits of indirect address in a 32 bit instruction and thus shows that fewer bits being transferred for the indirect memory addressing mode for reads/writes than in the direct memory addressing mode.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Shimizu et al. (US 5,669,012)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nam Huynh whose telephone number is 571-272-5970. The examiner can normally be reached on 8 a.m.-5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NTH
11/7/07


GEORGE ENG
SUPERVISORY PATENT EXAMINER